Factors Influencing the Psychological Adjustment of the Hand Injured Patients

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Abstract

Fifty-one hand injured patients were interviewed to study the factors influencing their psychological adjustment. They were required to answer three questionnaires, which included the Norbeck Social Support Questionnaire (Norbeck et al., 1981), the Locus of Control Scale (Reid & Ware, 1974), and the General Health Questionnaire (Goldberg, 1972). Among the predictor variables, the locus of control accounts for the greatest variances of GHQ score of the patients, and the internal-oriented group is found to be better adjusted than the external-oriented group. Social support has no main effect on the adjustment of the patients, but interactive effect between social support and locus of control is found. The effect of social support is different for the internal and the external group. The external-oriented group seems to benefit more from social support, when compared to the internal-oriented group. Gender difference is shown in the patterns of adjustment, but no difference is found between the recently injured patients and the patients with more remote injuries.

The results indicates that the mechanism of the interactive effect between social support and locus of control on psychological health status is more complex

than that described by the previous stress-moderating studies which mainly used university student sample. The mechanism is likely to be different for persons under different kinds and degrees of stress experienced. As different coping resources are required for the persons to cope in face of different stressors, further study should focus on the selection and identification of persons under different stressors and the successful coping resources they employed.

To enhance the psychological adjustment of the hand injured patients, they could be helped to exercise their self-control in their daily routines; but social support could be facilitated from relatives and friends of the external-oriented patients in order to help their psychological adjustment.

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CHAPTER I - The Hand Injured Patient

In both England and United States, injuries to the hand was found to form an important part of the hospital and emergency service (Edwards, 1975; Frazier, 1978). In Hong Kong, occupational hand injuries constitute 50% of all the industrial injuries (Leung & Ng, 1979). Hence, it is of value to investigate and obtain more information on the hand injured patients, among which the consequences and the psychological impact of the hand injury on the patient are of no less importance than, and most probably go beyond that of, the physical trauma.

The importance of the hand to mankind could be considered in an evolutionary aspect. It is the evolutionary development (including lengthening and strengthening) of the hand, that permitted man to carry food and weapons; reach, grasp, examine objects, and finally manufacture tools, which is the basis for the establishment and maintenance of the present civilization of the human being (Campell, 1974). At the same time, the hands have an irreplaceable instrumental position for the functioning of an individual, as the hands have a number of discrete structures which underlie their potential for movement and thereby their functional value (Lea & Febiger, 1977). The hands can execute a number of basic patterned motions facilitated by their many bones, some of which are almost universal joints, moved by

numerous muscles. Based on exquisite combination and coordination of those basic motions, the hands can execute an infinite variety of actions. It is this capacity for highly versatile and skilled movements which makes the hands in many ways unique, or even irreplaceable.

Man's adaptability is markedly dependent on the hand's capacity to perform an infinite number of tasks and sensing of the world. Hence, hand injuries would certainly bring instrumental consequences, say the lowering or the loss of ability to perform many daily functions and the partial losses of sense of touch, for the individual. In the financial aspect, hand injury also threaten the ability for the patients to secure similar employment at the previous level of income, which may cause a major change of the financial condition of the patient. Socially, the hand injured patients may have feelings of deviance from others and hence some loss of self-confidence as the hand is a very obvious part of the body that is exposed outside. This group of instrumental, financial and social consequences of the hand injury constitute a lot of demands to the patients.

When the patients appraise that the demands posed by the hand injury incident exceed their coping resources, they would feel stress (Lazarus, 1966, 1981). According to Folkman et al (1980), there are six categories of coping resources, these include system of beliefs, social support, problem-solving skills, health and energy, morale, and material resources. Different persons have

different constellation of coping resources which can be employed in face of demands, and the amount and combination of different kinds of coping resources available determine the person's psychological response in face of the demands, say whether one feels stressful.

Lloyd (1977) has identified three factors influencing the psychological responses of the patient in illness. These include factors related to the patient, the nature of the illness, and the social environment. Regarding factors related to the patient, patient's personality traits and his premorbid attitudes are identified to be naturally important in influencing his response to illness. The immediate social environment is also highlighted by the author, as the emotional responses of close relatives and friends have great influence on the patient's own attitudes.

In the study of life stress, Dohrenwend and his colleagues (Dohrenwend, 1979; Dohrenwend & Dohrenwend, 1981; Dohrenwend & Shrout, 1985) conceive the stress processes as consisting of three main structural components. They are respectively the personal dispositions, the ongoing social situations and the occurrence of recent events. They tried to include many meaningful variables, like genetic vulnerabilities, childhood bereavement, role strains, etc., under the above-mentioned three components in order to give a more

elaborate analysis of the stress process. However, they have some opinion about those variables that are relatively more important. For personal dispositions, locus of control is considered to be one of central importance, and supportive social networks are also considered to be in a central role in ongoing social situation, which influences one's psychological adjustment in stress.

The above-mentioned and other studies share the same view that one's personal system of beliefs and one's social situations influence the person's psychological responses. Among these two board categories of variables, locus of control and social support have been identified to be of central importance in influencing the person's psychological status and adjustment in face of stressful demands. For those hand injured patients fail to handle the demands successfully, residual maladaptive symptoms including anxiety, depression, low morale, loss of concentration and attention, or even a chronic psychogenic disability (Hartmann, 1958) may manifest.

The following sections give a brief review on the theoretical and empirical background of the two categories of factors, namely, social support and locus of control, that influence one's psychological status and adjustment in face of stressful demands.

Social Support

There is a variety of viewpoints concerning the definition and the measures of social support. Caplan (1974) defined social support systems as attachments between individuals and between individuals and groups that validate identity through the provision of feedback about behavior, assist in the mobilization of psychological resources and the handling of emotional difficulties, and share in tasks and provide tangible and affective supplies. Kaplan (1977) on the other hand defined it as the degree to which a person's basic social needs are gratified through interaction with others. Cobb (1976) considered social support as information that leads people to believe they are cared for, loved, esteemed and valued, and that they belong to a network of communication and mutual obligation. Kahn and Antonucci (1980) summarized the definition more concisely. Social support is considered as interpersonal transaction that consist of at least one of three characteristics: affect (love, respect), affirmation (acknowledgment of appropriateness of actions or statements), and aid (money, tangible items, information). As evident from the above-mentioned definitions and others , social support is considered as a multidimensional concept (Henderson, 1977; House, 1981; Kaplan et al, 1977; Wells, 1980). Hence, the researchers studying social support tend to investigate this construct in three scopes, they are respectively the quantity and

type (e.g. Berkmen & Syme, 1979; Eaton, 1978; Funch & Marshall, 1983), the structure (e.g. McCallister & Fischer, 1978, Gallo, 1982; Philip, 1981) and the function (e.g. Procidano & Heller, 1983; Sarason et al. 1983; Cohen & Hobermen, 1983; Norbeck et al., 1981) of the social relations. For those researchers studying in the quantity and type of social relations, they tend to focus on the mere existence and quantity of an individual's social contacts. Such information is more simple, objective and easy to obtain comparing to the study of the other two scopes of social relations. However the convenience does not undermine the significance of these findings. One of the social relations that has been most studied and found to be consistently related to health is marital status (House & Kahn, 1985). Longitudinal and prospective studies have shown a higher occurrence of psychological and physical disorders and a lower life expectancy among the unmarried than the married. The second scope of study of social relations focuses on their structure. It employs the approach called network analysis. The researchers within this scope of study emphasizes firstly, the analysis of the structure of social relations, as opposed to their mere existence or functional content; secondly, the mapping of a broad range of social relationships, instead of only some prominent ones like marital status; and thirdly, attention is turned to the relationships among the other persons in the network of the focal person, as the network may produces interactive

effect on the focal person (Wellman, 1981). The third scope emphasizes on the functional content of the social support for the person. Different researchers are interested in different functional contents of the social support. Cohen and Hobermen (1983) construct a questionnaire that assesses four types of functions of social support - tangible, appraisal, self-esteem, and belonging. While Kahn and Antonucci (1981) were interested in differentiating three forms of social support - aid, affirmation, and affect. At the same time, assessment and measures of social support also differ in whether they tap the perceived availability of support or the actual occurrence of supportive behaviors.

Many studies suggest that social support have constructive properties towards physical and psychological well-being (Cassel,J.,1974; Kaplan et al.,1977; Lin et al.,1979; Turner,1981; Sandler & Barrera,1984). Cohen and Wills (1985) identified two models or processes in which social support reinforces people's well-being. One is the buffering model which posits that support "buffers" persons from the potentially pathogenic influence of stressful events. This model considers the stress for the individual arises when he perceives the situation to be threatening and demanding and he does not have an appropriate coping response or when the response is perceived to be not immediately available (Lazarus, 1966),

and social support helps to provide necessary responses and resources which alleviate the stress perception and reaction of the individual. Hence social support is considered as a `stress-buffering factor' or `stress-moderator' in this model. Another model is the main-effect model which proposes that social support has a beneficial effect irrespective of whether persons are under stress. This model suggests that a generalized beneficial effect of social support could occur because large social networks provide persons with regular positive experiences and a set of stable, socially rewarded roles in the community, hence it helps them to avoid negative experiences and increase their well-being. The hand injured patients, similar to patients of other chronic physical illness, are occupied by a lot of fears and problems such as severe pain, progressive deterioration, disfigurement, dependency on others and changes in self-concepts (Dunkel-Schetter & Wortman, 1982). To cope with these problems, the patients require social support in various forms to deal with the stress.

Social support is in itself defined as a positive term, which implies that the interpersonal interaction from the social environment has a necessary supportive function. Nevertheless, social interactions may have negative effect (Heller et al., 1986), which is identical to the negative buffering effect as conceptualized by the

buffering model of social support. For example, support providers may hold misconceptions about the process of coping with illness, and the misconception can result in behavior which is inappropriate to the well-being of the patients. These behaviors include telling patients to cheer up, or minimizing their problems or concerns, and making other well-intentioned but ill-advised suggestions (Wortman & Lehman, 1986). Hence, despite the positive findings of many researches, there exists evidence about the negative aspects of social interactions. In fact, some researches have found that the negative impact of social support outweighs its benefits (Fiore, Becker & Coppel, 1983; Rook, 1976).

The process of social support seems more complicated than it appears, and it may involve other stress-buffering factors to produce effects on the patient's psychological adjustment. Recent research (Cummins, 1988; Lefcourt et al., 1985; Sandler and Lakey, 1982) suggest that the lack of consistent results regarding the buffering effect of social support is related to an individual's perceived control, or locus of control; and the role of social support in the stress-buffering process could not be clearly understood without the involvement and investigation of the locus of control of the patient.

Locus of Control

Among various personality factors, Locus of Control

is a well-researched one, and it can be considered as an individual's stable beliefs and styles of responding (Lefcourt, 1982). With internal locus of control, an individual sees himself as instructed in bringing about life's consequences and hence more likely to bring forth more optimal adjustment (Rotter, 1966). Locus of control has also been found to be the factor that influences psychological adjustment to stressful demands like, procedures administered in the intensive cardiac units (Cromwell et al, 1977); natural disasters (Anderson, 1977) and marine corps training (Cook et al, 1980). Hence, Locus of control can be considered as one of the important factors that affect the psychological adjustment of the hand injured patients in face of the stressful demands posed by the injury.

It is also found that the internal-external construct is multidimensional (Gurin et al, 1969; Mirels, 1970) For example, Mirels (1970) factor analyzed Rotter's Internal-External Scale and found two dimensions. The first dimension related to measurement of people's belief of luck and fate determining one's personal goals, and it was labelled as the dimension of fatalism. The second dimension centered on people's beliefs in their ability or inability to affect social-political process, and it was termed the dimension of social system control. Reid and Ware (1973, 1974) further identified one more dimension of the construct of Locus of Control, other than social

system control and fatalism. It was labeled as self control of one's impulses, desires, and emotions. This newly added dimension appears to be relevant for the psychological adjustment of the hand injured patients, as facing the stressful demands of the consequences of hand injury would involve their careful controlling of their own impulses and emotions, like involvement of persistence in practicing rehabilitation exercises, etc. Without the belief that they are in control of their own emotions, it would be difficult for the patients to successfully get through the adjustment stages after injuries (Kubler-Ross, 1969).

Relation between Social Support and Locus of Control

Many research on the stress-buffering process focus either on interpersonal resources like social support, or other individual traits of coping, e.g. hardiness (Kobasa, et al., 1981), and they are rarely combined together in the same study. Gore (1985) identified these two parallel but distinct research traditions, and called them study discipline boundaries, or bias. However, there exists some research investigating these two factors together, namely the social support and individual dispositional characteristics of the individual, and consider them closely related to stress coping. They found that one possible explanation for the inconsistent results regarding the buffering effect of social support

may be related to the individual's difference in utilizing social support (Cummins,1988; Lefcourt et al,1985; Sandler & Lakey,1982). These researchers found significant interactions between negative life events and social support in predicting measures of psychological stress on internals (namely, those who perceive themselves to be in control for their life); while no interaction was found among externals (namely, those who perceive their life are controlled by external forces). These results imply that the internals may better utilize social support as a resource to help themselves. To elaborate their positions, their findings are briefly summarized as follows.

Sandler & Lakey (1982) investigated the role of control perceptions and social support as stress-buffering factors by using 93 college undergraduates as subjects. They found that externality, namely, being external in control, was positively related to the quality of support received, and the stress buffering effect of support was obtained for internals and not externals.

Lefcourt et al. (1985) also investigated the interactive stress-buffering effects of locus of control and social support on three groups of university students. They confirmed Sandler and Lakey's (1982) findings that individuals with internal locus of control derive greater benefits from social support than those who have external

orientation. They also found that the buffering effect of social support largely occurs among those who are less generally affiliative and are more autonomous. Further analyses showed that the results obtained from the group of advanced students had a different pattern from that of the freshman. For the advanced students, their sense of well-being seemed to be more contingent on their beliefs of locus of control regarding achievement, which according to the authors was the most salient goal area for that group of students; while for the more junior students, locus of control concerning affiliation serves as a more important factor to account for the sense of well-being of them. It seemed that for different groups of people upon different developmental stages, or environmental characteristics, their ability to cope with stress depends on different aspects of their dispositional traits.

Evening class students who were older than the typical undergraduate was used as subjects in the study of Cummins (1981). Other than the variables of locus of control and perceived support, the actual amount of support in behavior was also measured. Received social support was found to have buffering effects for internals, while main effects of perceived social support are obtained for externals. On the other hand, perceived self-esteem support was found to have a 'negative' buffering effect for internals. When internals are under stress, self-esteem support would worsen their

psychological adjustment condition as they become more vulnerable to stress when they perceive that others see them as worthwhile and competent.

Review of the local studies

Locally, there were a number of studies on the Chinese hand injured patients. Tsoi, et al. (1982) investigated into the psychological reactions of 20 male hand injured patients one month after their orthopedic treatments were completed. Their self-esteem and mood states were assessed by Analogue Subjective Feelings Scale (Bond & Lader, 1974) and Coppersmith Self-esteem Inventory (Coopersmith, 1967). Of the 7 subscale measures: Alertness, Contentment, Relaxation, General self-esteem, Family self-esteem, Social self-esteem and Work self-esteem, only the Family self-esteem showed statistically significant difference between the mild and severe hand injury groups; though the general trend was that the severe hand injury group showed lower general self-esteem and more negative mood states.

Lee et al. (1985) conducted another study to investigate into the psychological adjustment of the hand injured patients. Sixty-two Chinese hand injured patients, who were all male factory workers were interviewed. It was found that the hand injured patients had more psychological and somatic symptoms, comparing to the average factory worker who had no hand injury. Poorer

psychological adjustment was also found to be related to poorer social adjustment, like less social activities and dissatisfaction with social life. It was found that the overall psycho-social adjustment was associated with the external locus of control of the patients, but it was not related to the medical rating of loss of earning capacity, namely an equivalent of the injury severity. The authors noted that the hand injured patients may go through different stages of adaptation, but the data in their study were not able to shed light on these stages of adjustment. One of the above-mentioned studies involved those patients discharged within a month from the hospital, while another involved patients with their injuries happening two-three years ago. Hence, the adjustment stages of the two samples of patients may be different. At the same time, this study included only one kind of stress buffering factor - the locus of control of the patients. The other set of stress buffering variables - the social support, and its relation with the psychological adjustment of the patients were not investigated.

Formulation of the problem

Two factors influencing the psychological adjustment of the hand injured patients were investigated by the above-mentioned studies, they were respectively the locus of control of the patients and the severity of their hand

injury. Locus of control was found to be significantly correlated to the psychological adjustment of the patients, but the hand injury severity was not found to be significantly correlated to their mood, self-esteem and other areas of psychological adjustment. The present study, following the foreign trend of stress-buffering studies (Cummins,1988; Lefcourt et al,1985; Sandler & Lakey,1982), includes another factor that is highly likely to influence the psychological adjustment of the hand injured patients - social support.

→ With reference to the local studies (Lee et al., 1985; Tsoi, et al., 1982), the present study includes subjects with an increase in background variety, both recently injured patients and patients with remote injuries are included in order to study the pattern of adjustment in different recovery stages. While the previous two studies only include male subjects, female patients are also included in the present study. With reference to the foreign studies (Cummins,1988; Lefcourt et al,1985; Sandler & Lakey,1982), the present study could also be considered as an extension of them. The aim, like the previous studies, is to study the interactive effect of the two important stress buffering factors, namely social support and locus of control. Nevertheless, the present study involves a clinical population in stress, instead of the college students which are used in the previous studies. This greatly

increases the external validity, or the ecological validity of the tradition of studies (Cherulnik, 1983; Cook & Campell, 1978). This could also further our understanding of stress buffering process which may be different for different populations (Kessler,1979).

CHAPTER II - Method

Subjects & Procedures

Fifty-one subjects who had various extent of hand injuries were interviewed in this study. Hand injury was defined as any injury occurring distal to the carpal crease, injuries to the forearm which affected the longitudinal structures sub-serving hand function were also included. Both male and female subjects were used in order to increase the generalization of the findings, instead of using only male subjects as in Lee et al. (1985), and Tsoi et al. (1982). Thirty-eight of them were males and 13 were females. The mean age for the patients was 37, with a range from 16-74. Seventeen of them were interviewed within two months of their injury while they were staying in the Orthopedic Ward, Prince of Wales Hospital. Patients who had been discharged from the Orthopedic Department were identified through the outpatient files, those who had their hands injured more than 2 months ago were contacted through the telephone. They were requested to come back to hospital for an interview. Thirty-four of them turned up from the 47 persons contacted, and the respondent rate was 72 percent. The interviews were conducted in the consultation room of the hospital and the three questionnaires were administered verbally in a randomized order. The administration time for each subject was about one hour.

Instruments

-Social Support.- Many theorists involving in social support studies suggested that all the three aspects of social support measure should be attended to including the function or the content, the quality, as well as the network of the social relation. There are a lot of research on social support, and most investigators develop their own scales in their studies. For example, Procidano & Heller (1983) and Sarason et al., (1983) developed a 20-40 items scale of the perceived availability of social support which was researched on mainly with a sample of college students. Barrera et al. (1981) developed a 40-item Index of Socially Supportive Behavior,; while Cohen & Hobermen (1983) developed a 48-item Integrated Support Evaluation List (ISEL). Billings & Moos (1981, 1982) also developed a quantitative Social Support Index (QSS) and a Family Relation Index (FRI) involving measures of both the network and functional construct of social relation.

The Norbeck Social Support Questionnaire (NSSQ) is a promising scale among these social support scales, and it has fared well both in the psychometric studies of clinical (Byer & Mullis, 1987) and non-clinical samples (Norbeck et al., 1981, 1983).

NSSQ consists of a set of questions based on the

theoretical scheme of Kahn and Antonucci (1981) which assess three types of social support - aid, affirmation, and affects - from multiple sources, namely relatives, friends and others. It also distinguishes between types and sources of support, which gives two sub-scale scores, the total functional score and the total network score. The total functional score provides an aggregate measure of the 3 types of support, namely the affirmation, affect and aid, received by the patient; while the total network score provides the aggregate estimate of different dimensions of the social support network of the respondent, which include the number of people, the frequency of contact and the duration of the relation of the respondent's social network. There is also a third sub-scale, the loss subscale. It is constructed to measure the recent losses of important relationships, which is considered as of "secondary interest in the study of social support" (Norbeck, et al. 1983). With these properties, the NSSQ appeared to be an appropriate scale to measure the effect of different types of support on the psychological adjustment of the hand injured patients. The present study used a Chinese translated version of the scale.

-Locus of Control.- Reid & Ware's (1974) Internal-External Scale consists of 45 forced choice items and 10 of them are buffer items. The higher the score

obtained, the more external is the subject. Three dimensions of locus of control is measured by this scale. The first one is fatalism which assesses the perception of randomness of general events happened. The second dimension is social system control which assesses the perception of control of the socio-political institutions and events. The third aspect is labeled emotional self-control, which assesses the perception of control of one's own emotions, impulses and desires. These three dimension of locus of control would be likely to have different relationship with the psychological adjustment of the hand injured patients. The psychometric properties of this scale were confirmed by Reid & Ware (1974) and Schlegel and Crawford (1976).

-Psychological Adjustment.- Concerning the psychological adjustment of the hand injured patients, certain aspects of their psychological adaptation could be studied : depression, anxiety, and other somatic symptoms. There are some established scales measuring a particular aspect of the above-mentioned symptoms. For example, Beck Depression Inventory (Beck et al, 1961) for the measurement of depression, State-Trait Anxiety Inventory for anxiety (Spielberger, Gorsuch & Lucheme, 1970). Nevertheless, a comprehensive scale measuring various aspects of psychological adjustment and the related symptoms - the General Health Questionnaire appears most appropriate.

The General Health Questionnaire (GHQ) was originally designed (Goldberg, 1972; Goldberg & Blackwell, 1970) to detect current non-psychotic disturbances covering physical symptoms and overt psychiatric disturbances in general practice patients, and it could be used as a screening instrument. Vieweg and Hedland (1983) summarized the findings on the psychometric properties of the various versions of the questionnaire in different settings, and found the reliability and validity of the scale was adequate.

In Goldberg et al. (1976) 's study, factor analysis on the 30-item GHQ finds that 52% of the total variance is accounted for by 4 varimax rotated factors, interpreted as Depression and Anxiety, Insomnia , Social Functioning, and Anhedonia. At the same time, factor analysis of the 30-item GHQ administered on Chinese subjects (Chan & Chan, 1983) finds 5 dimensions of psychopathology measured by the scale: anxiety, inadequate coping, depression, insomnia and social dysfunctioning. These five dimensions include generally all the most common psychological maladjustment of the hand injured patients, and hence the GHQ appears to be an appropriate scale for the present study. A Chinese translated version of the questionnaire is used in the present study.

Aims of the study

The present study intends to study the influence of different factors on the psychological adjustment of the hand injured patients. The predictor or independent variables, namely locus of control, social support, sex and time interval from injury; are hypothesized to be significantly correlated with the criterion or independent variable, that is, the general psychological adjustment of the hand injured patients. The correlation between social support and locus of control is also hypothesized to be significant since it is found that the more externally oriented patient is easier to trigger more social support (Sandler & Lakey, 1982).

It is hypothesized that interaction effects would present among the predictor variables. Locus of control would interact with social support to influence the psychological adjustment of the patients, namely for individuals with different orientation of locus of control, the influence of social support on psychological adjustment could be different. (Sandler & lakey, 1982; Cummins, 1988). For the externally oriented hand injured patients, it is hypothesized that social support would have smaller influence on psychological adjustment comparing to the internally oriented patients which, according to Cummins (1988), would better utilize the social support provided.

CHAPTER III - Results

Means

It is found that the mean General Health Questionnaire (GHQ) score of the hand injured patients is 8.4 as scored by the simple scoring method (0-0-1-1). It exceeds the normal cut-off point of 4 or 5 for western sample, and the suggested cut-off point of 5 or 6 for Chinese sample (Chan & Chan, 1983). This suggests the psychological health status of the patients interviewed are poorer than the average population. The mean total Norbeck Social Support Questionnaire (NSSQ) score is 82.8, and the mean of total Reid & Ware 3-Factor Locus of Control (LC) score is 12.8. It can also be noted that the standard deviation of the NSSQ scores are quite large. It is mainly due to the refusal of a small proportion of the respondents to name any person they thought that they were able to turn to. Hence, all the scale and sub-scale scores are zero for those respondents, which greatly increases the standard deviation of the scores obtained. The mean scores partitioned by sex and status of the patients are shown in Table 1. The other subscale scores of NSSQ and LC are shown in Appendix A.

Table 1.

Means table by sex and status of the patients

A. Sex

	Male	Female	t-value
GHQ	8.4	9.0	- 0.5
NSSQ	76.0	103.8	- 1.3
LC	11.5	16.8	- 3.8 *

* - p < .05

B. Status of the patients

	Recently injured	Remotely injured	t-value
GHQ	8.1	8.7	- 0.3
NSSQ	117	71.1	2.1 *
LC	10.8	13.5	- 1.8

*- p < .05

Note: GHQ= General Health Questionnaire total score

NSSQ= Norbeck Social Support Questionnaire

LC = Locus of Control total score

SEX= gender of the patients

Intercorrelations

Table 2 shows the intercorrelations among the various variables. GHQ score is found to be significantly and positively correlated with the total score of LC Scale ($r=.342$, $p< .01$). Concerning the subscales of the LC scale, GHQ score is significantly correlated with the Self-control subscale ($r=.357$, $p< .01$), and the Fatalism subscale ($r=.411$, $p< .01$), but it is not significantly correlated with the Social-control subscale ($r=.066$, $p >.05$).

GHQ score is not significantly correlated with NSSQ total score ($r=-.041$, $p >.05$), neither is it significantly correlated with the NSSQ subscales : with Affect subscale ($r=-.024$, $p >.05$), with Affirmation subscale ($r=-.073$, $p >.05$), with Aid subscale ($r=-.027$, $p >.05$), and with total Network subscale (namely combining subscales of number in network, duration of relationship and frequency of contacts) ($r=-.038$, $p >.05$). The NSSQ total score is not significantly correlated with the LC total score ($r=-.003$, $p >.05$). Neither are their subscales significantly correlated ($r_s <.15$, $p >.05$). For the 6 NSSQ subscales, their intercorrelations are all higher than .94 ($p <.001$); while for the 3 LC subscales, their intercorrelations are higher than .41 ($p <.005$).

Table 2.
Correlation Matrix among Variables

	LFA	LSS	LSC	NAT	NAF	NAD	NN	NDU	NFE	SEX	TIM	AGE
GHQ	.41*	.07	.36*	-.02	-.07	-.03	-.02	-.04	-.04	.07	.04	-.05
LFA		.41*	.61*	-.00	.02	-.02	.05	.01	.01	.41*	.26#	-.13
LSS			.48*	-.16	-.10	-.12	-.14	-.15	-.13	.38*	.20	-.11
LSC				.10	.17	.14	.14	.14	.14	.39*	.14	-.14
NAT					.97*	.95*	.95*	.97*	.95*	.27#	-.26#	-.23
NAF						.97*	.96*	.97*	.96*	.26#	-.26#	-.24#
NAD							.97*	.98*	.96*	.18	-.32#	-.25#
NN								.98*	.98*	.18	-.30#	-.19
NDU									.97*	.21	-.29#	-.20
NFE										.18	-.32#	-.22
SEX											-.09	.15
TIM												.02

*- $p < .01$, #- $p < .05$

Note:
GHQ= General Health Questionnaire total score
LFA= Fatalism subscale score of LC scale
LSC= Self-control subscale score of LC scale
LSS= Social system control subscale of LC scale
NAT= Affect subscale score of NSSQ
NAF= Affirmation subscale score of NSSQ
NAD= Aid subscale score of NSSQ
NN= Network number subscale score of NSSQ
NDU= Duration subscale score of NSSQ
NFE= Frequency subscale score of NSSQ
NSSQ= Norbeck Social Support Questionnaire
SEX= gender of the patients
TIM= Time lapse between the injury and the interview
AGE= age of the patients

The correlation of the sex of the patients with their locus of control scores is significant ($r=.487$, $p< .001$), while the correlations of the status of the patients with their NSSQ scores ($r= -.283$, $p< .05$), and LC score ($r=.254$, $p< .05$) are also significant. The locus of control score of male patients (mean= 11.5) are found to be significantly lower than that of female patients (mean= 16.8) by t-test <$t= -3.8$, $p< .05$>. While the NSSQ scores of recently injured patients (mean=102) is higher than that of out-patient with more remote injuries (mean=71) <$t= 2.1$, $p< .05$>.

Regression analysis

The Regression analysis aims to investigate the respective influences of the various predictor variables, namely, the LC score, NSSQ score, the sex of the patients and the time lapse between injury and interview. together with their interaction effect on the dependent variables, GHQ score.

Results of the regression analysis are indicated in Table 3. It could be seen that the change of variance accounted for by sex, and by time lapse between injury and interview are insignificant (R^2 <.01, p >.05). The variance accounted for by LC total score is significant (R^2 =.13, p <.05), while that accounted for by NSSQ total score is insignificant (R^2 <.01, p >.05). There are also two interactional effects observed which could account for a significant proportion of the GHQ score variance. Sex and NSSQ has interactional effect on GHQ score (R^2 =.09, p <.05), and LC score and NSSQ score has also interactional effect on GHQ score (R^2 =.07, p <.05). The total variance of GHQ score accounted for by the combination of the predictor variables is 0.35, namely 35 % of the change of the GHQ score can be explained by the predictor variables.

Table 3 Hierarchically arranged Regression analysis summary table.

Dependent variable= GHQ score

	R^2 change	F value	significance
Sex	.004	.21	.65
Time	.004	.17	.68
LC	.126	6.56	.01
NSSQ	.001	.04	.85
Sex X NSSQ	.091	5.04	.03
Sex X LC	.011	.61	.44
Time X NSSQ	.001	.03	.86
Time X LC	.040	2.18	.15
LC X NSSQ	.074	4.43	.04

Note:

LC= Locus of control total score

NSSQ= Norbeck Social Support total score

GHQ= General Health Questionnaire total score

Time= Time lapse between the injury and the interview

A X B= Interaction term for A and B

Details of the interactional effects could be shown by another supplementary analysis -the multi-factorial Analysis of Variance method, namely ANOVA, see appendix D. The interactional effect of locus of control and support and that of sex and social support can be demonstrated by Fig. one and Fig two (Note 1). The relation between sex, locus of control and social support can be demonstrated more clearly if three way interaction between these variables is done. However, an empty cell appears if subjects are partitioned in this way. No female subject falls into the category of low social support with low internality. Hence, three way interaction can not be done in this study. At the same time, the obtained data could also be analyzed by using the method of partitioning the subjects into 2 groups, namely internals and externals (see Appendix E), which may also help to clarify the results though there is a certain degree of overlap with the previous analysis.

Note 1 : The two quantitative scales, LC scores and NSSQ scores, are respectively partitioned into two groups by their median.

Fig. 1.

Interactional effect of
Locus of control X Support

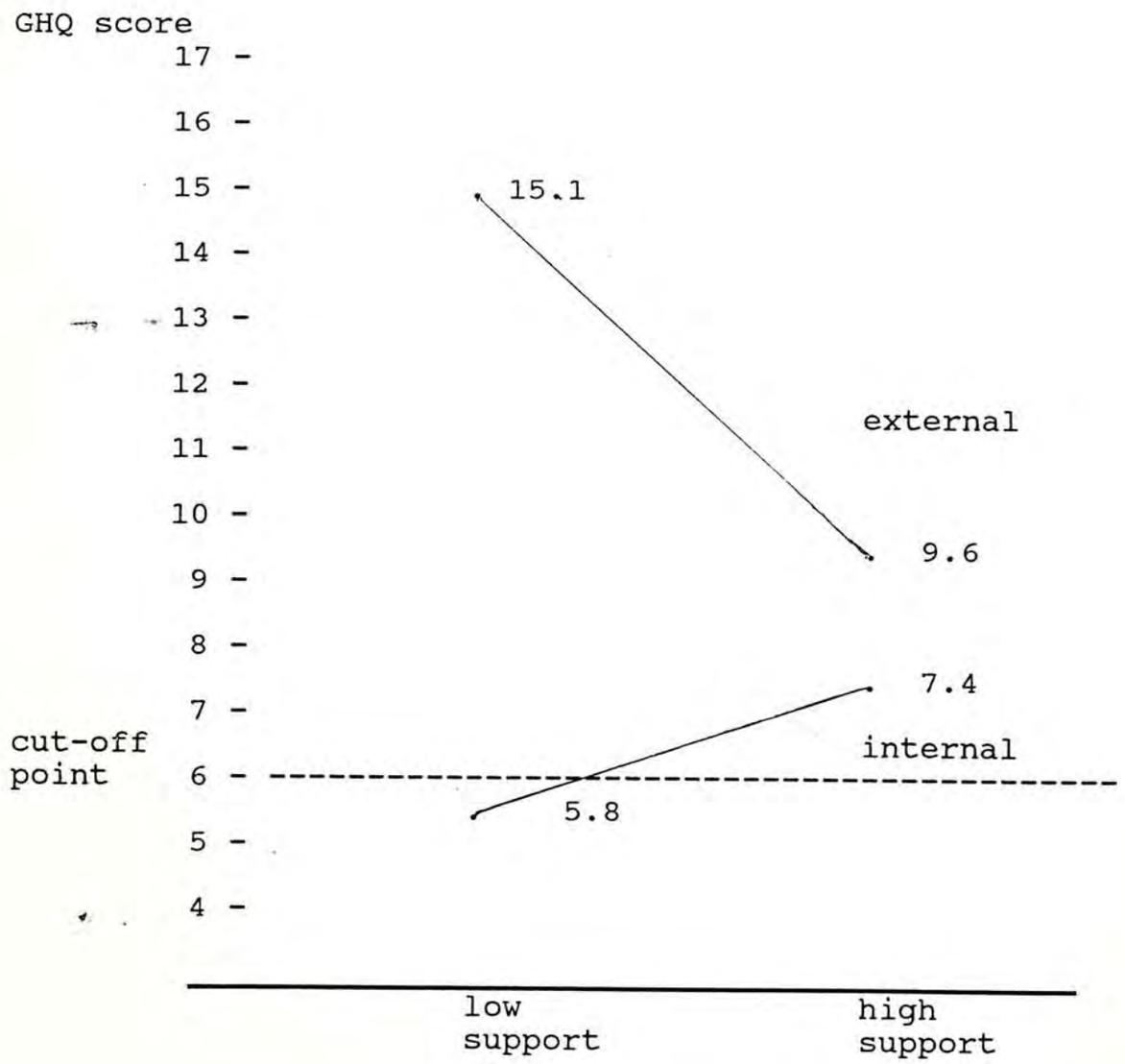
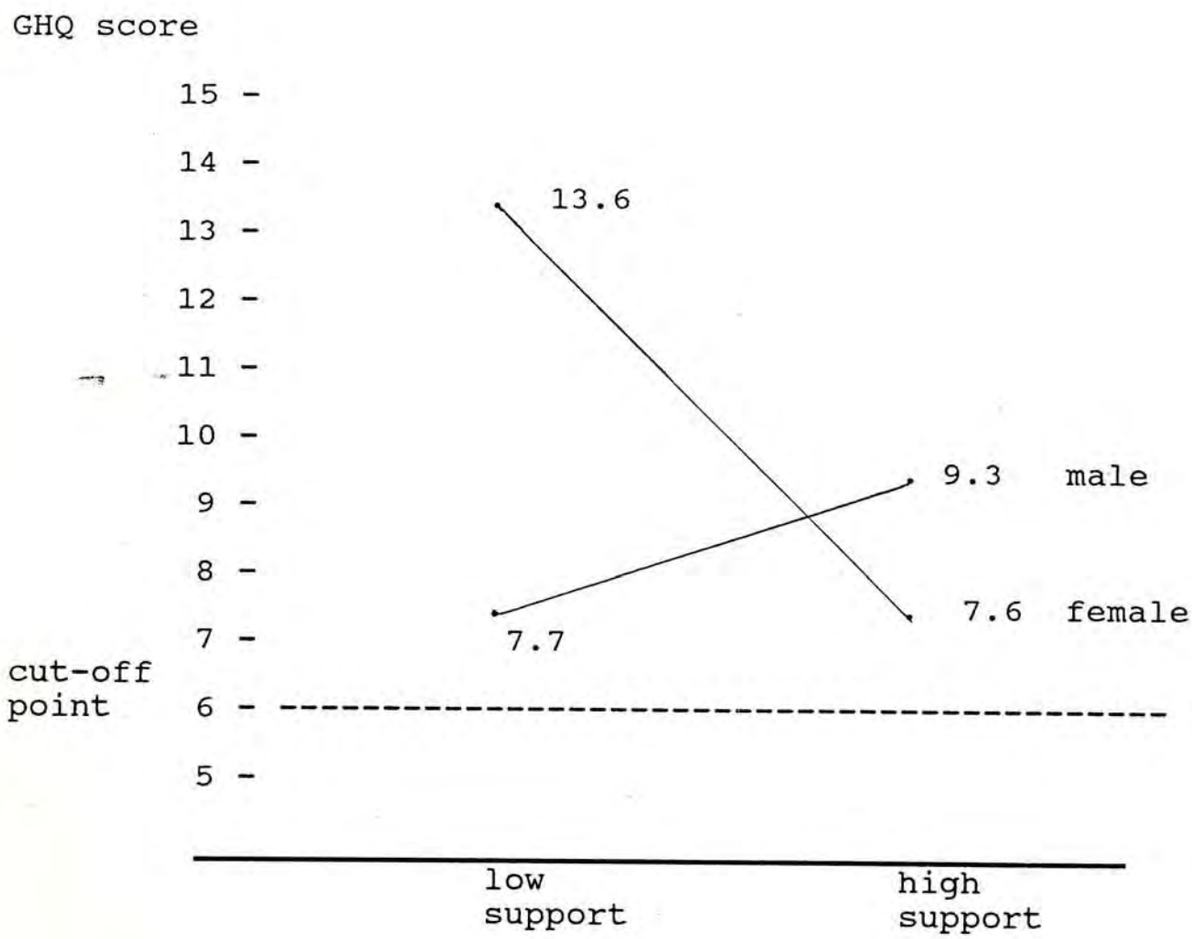


Fig. 2.

Interactional effect of
Sex and Social support



CHAPTER IV - Discussion

Influences of locus of control

The results indicate that the locus of control of the hand injured patients is significantly and negatively correlated with the psychological adjustment. Nevertheless, not all dimensions of locus of control is related to the psychological adjustment of the patients. Both the dimensions of the perception of the randomness of the life events, and the control perception of one's own impulses and emotions are beneficial for psychological adjustment, but the patients' control perception of the social-political process is not related to their psychological adjustment.

The findings are expected as it could readily be seen that the perception of oneself in control of the life events is necessary for better psychological adjustment of the patient. Otherwise the patients may give up trying to cope with the demands after their hand injures, including change of domestic habits, or the change of jobs. Experiencing hand injury and the accompanying ability loss, the patients have feelings of anger, frustration or depression (Hartmann, 1958), perception of control in the areas of emotions are also useful to help themselves to overcome the disturbed feelings encountered.

It could also be noted that the correlation between locus of control and the psychological health status of the patients is comparable to the previous study using Chinese hand injured subjects (Lee et al., 1985), and it is consistently higher than that of the stress buffering research using the western subjects. One of the explanations can be attributed to the different level of stress facing the subjects in various studies, namely the hand injured patients in the local studies, and that of the western studies which are university students. The stress faced by the hand injured patients are more acute. It would be difficult for them to seek other resources to cope with the stress, and a more internal perception of control facilitate the search and use of relevant coping resources to deal with this crisis (Lazarus, 1966, 1981). Hence locus of control becomes the most important coping resources for the patients to rely on, while the students have external coping resources available in other area, which shares the buffering role of locus of control and hence reduces the strength of correlation of locus of control with the psychological adjustment.

Social support and its interactive effect with Locus of control

Social support has apparently no main effect on psychological adjustment of the patient. At the same time,

the differential effects of different dimensions of social support can not be clearly identified. As shown by Table one, the different dimensions of social support are highly correlated. The reason is likely to be cultural. For the chinese, they may have relatively more obscure distinction between different kinds of social support. For example, the affect dimension of social support is usually communicated in Chinese culture through tangible aids like giving money or gifts. Hence the receiver of social support would find it difficult to differentiate different kinds of social support and that explains the high correlation between different dimensions of social support.

Though main effect of social support is absent, there is interactive effect of social support and locus of control. It means that social support has different effects for people with different locus of control, which is demonstrated by Fig. 1. For externals, higher social support reduces their GHQ score, namely social support buffers the stress experienced by the patients and helps them to adjust better. While for internals, social support slightly hinders and deteriorates the psychological adjustments of the patients.

The findings are contrary to the pervious two stress buffering studies (Sandler & Lakey, 1982; Lefcourt et al., 1985). They found that social support was usually more

useful for internals, as they knew how to utilize it. The present findings, namely the social support is more effective for externals rather than internals, are similar to that found in a stress mediator study using the Chinese undergraduate students as subjects (Chan, 1986). This implies that the interactional effect of social support and locus of control can not be explained solely by the stress differences faced by the subjects. The present findings are more akin to the findings by Cummins (1988), which found that perceived social support acts as a buffer for externals, but perceived self-esteem support was found to have a `negative' buffering effect for internals. These findings can be understood with a more elaborate analysis of the function of social support in buffering stress. Caplan (1981) suggested that effective social support helps to restore perceived control by providing the stressed person with various types of assistance (Kahn & Antonucci, 1981), including helping him to evaluate the situation, formulating a plan of action, assistance in implementing the plan, and the provision of feedback. The net result of this assistance and feedback is an increased feeling of personal competence. This position is supported by the longitudinal study of the relationship between social support and locus of control beliefs on a group of older adults (Krause, 1987). The influence of social support was found to be operated by bolstering internal locus of control beliefs. However the relationship between social support and locus of control

is nonlinear. Increase of support tends to increase feelings of control, but only up to a certain threshold. Hence for those patients who are more external, social support helps to increase their feeling of personal competence, and hence buffers the stress. However for the internal oriented patients with high perception of control, the ceiling effect or the threshold has been reached, social support can no longer increase the feeling of personal competence, and may even undermine it. The social support process of the present study would involve esteem support, like reassuring the ability of patient to handle the existing stress; and instrumental support, like preparing meals for the patient. This component of the social support may hinder the proper adjustment of the internals, as it is proposed by Cummins (1988) that internals become more vulnerable to stress when they perceive that others see them as worthwhile and competent. Hence, the internals seems to be more sensitive to the negative effects of social support and affected by it.

Influences of demographic variables

Concerning the gender, no significant difference is found between male and female on psychological adjustment and amount of social support received. However the locus of control of female patients is significantly more external than male patients, which is in accord to previous Chinese studies (Lao etal., 1977). At the same

time, interactive effect exists between sex and social support. For female patients, social support acts as a buffer to reduce the stress and help their psychological adjustment. While for male patients, social support is not able to reduce the stress, and it slightly increases the GHQ score of the patients. The present interactive effect between gender and social support on psychological adjustment could be contributed by the high correlation between gender and locus of control. This hypothesis could be ascertained by three way interactional analysis, which is unable to be done in the present study.

Concerning the influence of time lapse between injury and the interview, it is found to have no significant correlation with the psychological adjustment of the patients. Nevertheless, there is significant difference between the social support of the recently injured patient, and patients with remote injuries. It means that for the recently hand injured patients who are mostly staying in the hospital as in-patients, they perceive more social support available, for example there may be visits and supports from their relatives and friends during the patients' stay in the hospital. Nevertheless, for the patients with more remote injuries, their life are expected to return to normal daily routines when they return home as their injuries gradually recover physically. Their family members would expect them to somehow pick up the usual role or daily routines again

(Wortman & Conway, 1985), and social support may decrease or perceived to be decreased by the patients.

For the third demographic variable - the age of the patients, it is found to have no correlation with either of their psychological adjustment, locus of control, and social support received.

Conclusion

The study has identified some of the factors that influence the psychological adjustment of the hand injured patients, and they totally account for 35 % of the change of the psychological adjustment of the patients. The most important factor is the perception of control of the patients in the area of randomness of life events and their own emotions or impulses. Social support is another important factor, but it is more helpful to the group of patients with external locus of control. Other factors are not included in this study due to the focus of the present study and the limitation in resource. These factors may be able to account for the remaining variance of the psychological adjustment of the patients. These factors include whether the injured hand is the dominant or non-dominant hand, the severity of the injury, and the site of injury, etc. The subjective perceptions of the patients on the severity of the injury, and specific attributions of the cause of their injuries, say

considering the injuries as their own responsibility, or attributing the responsibility to others, etc., could also be included in future studies.

There are some other limitations of the present study. It is a cross-sectional study, and hence the findings reflect the correlation of different variables, and no direct causal explanation can be drawn. For example, locus of control is found to be positively related to psychological adjustment in the present study, but it is possible to explain it by better psychological adjustment serves to increase the locus of control, rather than the locus of control determining the psychological adjustments. Hence longitudinal study, or some instrument to tap the premorbid locus of control would be useful to shed light on the exact relationship between locus of control and psychological adjustment. With respect to the study of stage of recovery, the present study involves two groups of people, namely one with more recent injuries and the other more remote injuries. These two group of people may be different in the personal characteristics and hence affect the findings concerning the pattern of adjustment during different stages of recovery. More intact findings would involve the use of longitudinal study concerning the reaction of the patients during different stages of recovery.

Enhancing psychological adjustment of the patient

To help the psychological adjustments of the hand injured patients, we could facilitate the provision of adequate social support to the more external oriented patient in order to assist them through the stressful situation in the short run. In the long run, they could be helped to develop more internal perception of control, for example through contingency awareness (Lefcourt,1982), or psychotherapy which would help them to have better psychological adjustment. However, as psychotherapy may not be able to provide for every hand injured patients, a positive and encouraging atmosphere could be cultivated to give more opportunity for the patients to feel they are in control of their daily routines, and these would help to increase the internality, and hence the psychological adjustment of the patients. For the in-patients, such atmosphere could be developed in the ward, and the help from the nursing staff would be required; while for the out-patients, the family atmosphere becomes important and the help from the family members should be encouraged. Though it seems that locus of control is definitely important for psychological adjustment, but the importance of the social support from the patients' relatives and friends could not be ignored. It is also meaningful to produce a differential change of psychological adjustment among the group of external-oriented patients.

Implication for further study

The results of the present study indicate that the mechanism of the interactive effect between social support and locus of control on psychological health status is more complex than that described by the previous stress buffering studies that involve university student subjects (Cummins,1988; Sandler & Lakey,1982). The pattern of results resembling the present study has somehow been identified by Lefcourt et al. (1985), who found that the coping resources required by the advanced students are different from that of the junior students as their coping tasks and salient goals are different. Hence, The effect of social support is qualified by other internal and situational characteristics of the receiver, and a certain kind of social support may be useful for the subjects under specific constellation of stress. The present study differs from the previous study in that a clinical population, namely the hand injured patients is used as subjects. The nature of stress and the accompanying demands faced by this patients is very different from the demands faced by the university students in the previous studies, and hence the factors influencing the pattern of adjustment would be different. To fully investigate how the difference in the stressors and demands faced by the subjects is related to the different effects of stress-buffering factors, different groups of people under different situational demands should be involved in the

same study. Furthermore, a more comprehensive scale which assess the stress faced by the subjects should be involved in the study in order to give a quantitative analysis of how different kind of stressors would combine with particular stress-buffering factors to influence the psychological adjustment of the subjects.

References

Anderson, C.R. (1977). Locus of Control, coping behaviour and performance in a stress setting: a stress setting: a longitudinal study. Journal of Applied Psychology, 62, 446-451

Barrera, M., Sandler, I., & Ramsay, T. (1981). Preliminary development of a scale of social support: studies on college students. American Journal of Community Psychology, 9 (4), 434-447.

Beck, A.T. Ward, C.H., Mendelsohm, M., Mock, J., & Erbough, J. (1961) An inventory for measuring depression. Archives of General Psychiatry, 4, 561-571.

Berkmen, L.F., & Syme, S.L. (1979). Social networks, host resistance, and mortality: A nine-year follow-up study of Alameda County residents. American Journal of Epidemiology, 109 (2), 186-204.

Billings, A.G., & Moos, R.H. (1981). The role of coping resources in attenuating the stress of life events. Journal of Behavioral Medicine, 7 (2), 139-157.

Billings, A.G. & Moos, R.H. (1982). Social support and functioning among community and clinical groups: A panel model. Journal of Behavioral Medicine, 5 (3), 295-311.

Bond, A. & Lader, M. (1974). The use of analogue scales in rating subjective feelings, British journal of medical psychology, 47, 211-8.

Bradley, R., stuck, G., Coop, R., and White, K. (1977) A new scale to asses locus of control in three achievement domains. Psychological Reports, 41, 656-661.

Byer, P.H. and Mullis M.R. (1987) Reliability and Validity of the Norbeck's Social Support Questionnaire in Psychiatric Inpatients, Educational and Psychological Measurement, 47, 445-448.

Campell, B. (1974) The evolution of the human hand. In Cohen, Y.A. (Eds.) Man in Adaptation : The Biosocial Background. Aldine Publishing Co., Chicago.

Caplan, G. (1974). Support systems and community mental health. New York: Behavioral publications

Cassel, J. (1974). An epidemiological perspective of psychosocial factors in disease etiology, American Journal of Public Health, 64, 10400-1043.

Chan, D.W. and Chan, S.C. (1983). Reliability, Validity and the Structure of the General Health Questionnaire in a Chinese context, Psychological Medicine, 13, 363-371.

Chan, D.W. (1986). Psychosocial mediator in the Life event - illness relationship in a chinese setting, International Journal of Psychosomatics, 33(9), 3-10.

Cherulnik, P.D. (1983). Behavioral research assessing the validity of research findings in psychology. New Yory: Harper & Row.

Cobb, S. (1976). Social support as a moderator of life stress. Psychosomatic medicine, 38, 300-314.

Cohen, S., & Hobermen, H. M. (1983). Positive events and social supports as buffers of life change stress. Journal of Applied Social Psychology, 13 (2), 99-125.

Cohen, S., & Merkey, G. (1984). Social support, stress and the buffering hypothesis: A theoretical analysis. In A. Baum, J.E. Singer, & S.E. Taylor, (Eds.), Handbook of psychology and health (Vol. 4). Hillsdale, NJ: Erlbaum.

Cohen, S., & Wills, T.A. (1985) Stress, Social Support, and the buffering hypothesis, Psychological Bulletin, 98, 310-357.

Cone, J. & Hueston, J.T. (1974) The Medical Journal of Australia, 1, 104-108

Cook, T. M., Novaco, R. W., & Sarason, I.G., (1980). Generalized expectancy, life experience and adaptation to Marine Corps recruit training (AR-002). Seathe, Washington: University of Washington.

Cook, T.D. & Campbell, D.T. (1979). Quasi-experimentation: design and analysis issues for field settings. Boston: Houghton Mifflin.

Coopersmith, S. (1967) The antecedents of self-esteem. W.H. Freeman & Co.

Cromwell, R.L., Rosenthal, D., shakow, D. & Zahn , T.P. (1961).Reaction time, locus of control, choice behavior and description of parental behavior in schizophrenic and normal subjects. Journal of Personality, 29, 363-379.

Cummins, R.C. (1988). Perceptions of social support, receipt of supportive behaviors, and locus of control as moderators of the effects of chronic stress. American Journal of Community Psychology, 16(5), 685-700.

Dohrenwend, B.S. & Dohrenwend, B.P., (1974). Stressful life event. Their Nature and Effects. New York: Wiley.

Dohrenwend, B.P. & Shrout, P.E. (1985). "Hassles" in the conceptualization and measurement of life stress variables, American psychologist, 40, 780-785.

Dunkel-Schetter, C., & Wortman, C. (1982). The interpersonal dynamics of cancer: Problems in social relationships and their impact on the patient. In H.S. Friedman & M.R. Dimatteo (Eds.), Interpersonal issues in health care. New York : Academic Press.

Eaton, W.W. (1978). Life events, social supports, and psychiatric symptoms: a reanalysis of the New Haven data. Journal of Health and Social Behavior, 19, 230-234.

Edwards, D.H. (1975) The Spectrum of Hand Injuries, The Hand, 7, 46-50.

Fiore, J., Becker, J., & Coppel, D. (1983). Social network interactions: A buffer or a stress. American Journal of Community Psychology.

Frazier, W.H. (1978) Hand Injuries : incidence and epidemiology in an emergency service, Journal of American College of Emergency Physicians, 7, 265-268

Funch, D.P., 7 Marshall, J. (1983). The role of stress, social support and anger in survival from breast cancer. Journal of Psychosomatic Research, 27 (1), 77-83.

Gallo, F. (1982). The effects of social support network on the health of the elderly. Social Work in Health Care, 8 (2), 65-74.

Goldberg, D.P.(1972). The Detection of Psychiatric illness by Questionnaire. Oxford University Press: Oxford.

Goldberg, D.P. & Blackwell, B. (1970). Psychiatric illness in general practice: a detailed study using a new method of case identification. British Medical Journal, 439-443.

Goldberg, D.P., rickele, k., Down, R. & Hesbacher, P. (1976). A Comparison of two Psychiatric screening tests. British Journal of Psychiatry, 29, 61-67.

Gore, S. (1985). Social support and styles of coping with stress. In Kahn, R.L. & Williams, D. (eds.) Social support and health. New York: Academic Press.

Gurin, P., Gurin, G., Lao, R.C. & Beattie, M. (1969). Internal-External control in the motivational dynamics of Nergo youth, Journal of Social Issues, 25, 29-53.

Hammer, M. (1981) Social supports, social networks, and schizophrenia. Schizophrenia Bulletin, 7, 45-57.

Hartmann, H. (1958) Ego Psychology and the problem of Adaption. Internal Universities Press.

Heller, K., Swindle, R.W., & Dusenbury, L. (1986). Component social support processes: comments and integration. Journal of Consulting & Clinical Psychology, 54, 466-470.

Henderson, S. (1977). The social network, social support and neurosis: The function of attachment in adult life, British Journal of Psychiatry. 131, 185-191.

Holahon, C.J., & Moos, R.H. (1982). Social support and adjustment: Predictive benefits of social climate indices. American Journal of Community Psychology, 10 (40), 403-413.

House, J.S. (1981). Work stress and social support, Reading, MA: Addison-Wesley.

House, J.S. and Kahn, R.L. (1985). Measures and concepts of social support. In Cohen, S. & Syme, S.L. (eds.) Social support and health. New York: Academic Press.

Israel, B.A. (1982). Social networks and health status: Linking theory, research and practice. Patient Counseling and Health education, 4 (2), 65-79.

Kahn, R.L., & Antonucci, T.C. (1981). Convoys of social support: A life course approach. In S.B. Kiesler, J.N.Morgan, & V.K. Oppenheimer (Eds.), Aging : Social Change. New York: Academic Press.

Kaplan, B.H., Cassel, J.C., and Gore, S. (1977) social support and health, Medical care, 15, 47-58.

Kessler, R. (1979). A strategy for studying differential vulnerability to the psychological consequence of stress. Journal of Health and Social Behavior, 20, 100-108.

Kilpatrick, P.G., Dubin, W.R., & Marcotte, D.B.(1974). Personality, stress of the medical education process and changes in affective mood state. Psychological Reports, 34, 1215-1223.

Kobasa, S.C., Maddi, S.R., & Courington, S. (1981). Personality and constitution as mediators in the stress-illness relationship. Journal of Health and Social Behavior, 22, 368-378.

Krause, N. (1987) Understanding the stress process: linking social support with locus of control beliefs, Journal of Gerontology, 42(6), 589-593.

Kubler-Ross, E. (1969). On Death and Dying. New York : Mamillian Company.

Lao, R.C., Chuang, C.J., & Yang, K.S. (1977). Locus of control and Chinese College students, Journal of Cross-cultural Psychology, 8, 299-313.

Lazuras, R.S. (1966). Psychological stress and the coping process. New-York: McGraw-Hill.

Lazarus, R.S. (1981). The stress and coping paradigm. In C. Eisdorfer, D. Cohen & P. Maxim (Eds.), Models for clinical psychopathology (pp. 177-214). New York: Spectrum Medical & Scientific Books.

Lazarus, R.S. & Folkman, S. (1984). Stress, appraisal and coping. New York: Springer.

Lea & Febiger (1977) Psychosocial Aspects of Hand Disabilities. In Kilgon, E.S. & Graham, W.P. (Eds.) The Hand : Surgical & Non-surgical Management.

Leavy, R.L. (1983). Social support and psychological disorder. Journal of Community Psychology, 11, 3-21.

Lee, W.H., Ho, E., Tsang, A., Cheng, C.Y., Leung, P.C., Cheng, Y.H., & Lieh-Mak, F. (1985). Psychosocial adjustment of victims of occupational hand injuries. Social Sciences and Medicine, 20(5), 493-497.

Lefcourt, H.M. (1982). Locus of Control. Lawrence Erlbaurm Association, Publication:Hillsdale,New Jersey.

Lefcourt, H.M., Martin, R.A., & Saleh, W.E. (1984). Locus of control and social support: Interactive moderators of stress. Journal of Personality and Social Psychology, 47(2), 378-389.

Leung, P.C. & Ng, K.W. (1979). Occupational hand injuries- the pattern and the causes, Journal of the West Pacific Orthopaedic Assessment, 16, 41.

Lin, N., Simeone, R.S., Eusel, W.M.& kuo, W. (1979). Journal of Health and Social Behavior, 20, 108-119.

Lloyd, G.G. (1977). British Journal of Hospital Medicine, 50,

Manuck, S.B., Hinrichson, J.J. & Ross, E.O. (1975). Life stress, locus of control, State and Trait Anxiety, Psychological reports, 36, 413-414,

McCallister, L., & Fischer, C.S.(1978). A Procedure for surveying personal networks, Sociological methods and research, 7 (2), 131-148.

Mirels, H.L., (1970).Dimensions of internal versus external control. Journal of Consulting and Clinical Psychology, 34, 226-228.

Norbeck, J.S., Lindsey, A.M., & Carrieri, V.L. (1981). The development of an instrument to measure social support. Nursing Research, 30 (5), 264-269.

Norbeck, J.S. & Tilden, V.P. (1983). Life stress, social support, and emotional disequilibrium in complications of pregnancy: A prospective, multivariate study. Journal of Health and social behavior, 24, 30-46.

Nowicki, S. & Strickland, B. (1973) A locus of control scale for children. Journal of Consulting and Clinical Psychology, 40, 148-154.

Phillips, S.L. (1981). Network characteristics related to the well-being of normals: A comparative base. Schizophrenia Bulletin, 7 , 117-124.

Procidano, M. E., 7 Heller, k. (1983). Measures of perceived social support from friends and from family : Three validation studies. American Journal of community Psychology, 11 (10), 1-24.

Reid. D.W., Ware, E.E. (1974). Multidimensionality of internal versus external control: addition of a third dimension and non-distinction of self versus others, Canadian Journal of Behavioral Science, 6 (2), 131-142.

Reid, D.W., and Ware, E.E. (1973). Multidimensionality of internal-external control: implication for past and future research, Canadian Journal of Behavioral Sciences, 5(3), 264-271.

Rook, K.S. (1986). The negative side of social interaction : Impact on psychological well-being. Journal of Personality and Social Psychology.

Rotter, J.B.,(1966). Generalized expectancies for internal versus external control of reinforcement, Psychological Monograh, 1966, 80.

Sandler, I.N., and Bamera, M., (1984). Toward a Multimethod Approach to assessing the effects of social support, American Journal of Community Psychology, 12, 37-52.

Sandler, I.N., & Lakey, B.,(1983). Locus of control as a stress moderator: the role of control perception and social support. American Journal of Community Psychology, 11, 47-58.

Sarason, I.G., Levine, H.M., Basham, R.B., & Saaarason, B.R. (1983). Assessing social support: the social support questionnaire. Journal of Personality ans Social Psychology, 14, 127-139.

Schlegel, R.P., and Crawford, C.A.(1976).multidimensionality of internal-external locus of control: some additional data bearing on the validity of self-control as a third dimension, Canadian Journal of Behavioral Science, 8 (4), 375-387.

Spielberger, C.D., Gorsuch, R.l. 7 Lushene, R.E. (1970). Manual for the state-Trait Anxiety inventory. Palo Alto: Consulting Psychologists Press.

Tsoi, M.M., Leung, P.W.L., & Chow, S.P. (1982). Psychological reactions to hand injuries among semi-skilled chinese workers. Annals Academy of Medicine, 11(2), 214-217.

Turner,R.J. (1981). Social support as a contingency in psychological well-being. Journal of Health and Social Behavior, 22, 357-367.

Vieweg, B. W. & Hedland, J.L.(1983). The General Health Questionnaire (GHQ): a comprehensive review. Journal of Operational Psychiatry, 14, 74-81.

Wellman, B. (1981). Applying network analysis to the study of support. In B. gottlieb (Ed.), Social networks and social support. Beverly Hills: Sage.

Wortman C., & Conway, T.L. (1985). The role of social support in adaption and recovery from physical illness. In Cohen, S. & Syme. S.L. (eds.) Social support and health. New York: Academic Press.

Wortman, C., & Lehman, D. (1986) Reaction to victims of life crises: Support that doesn't help. In I.G. Sarason & B.R. Sarason (Eds.), Social Support: Theory, research, and application. The Hauge: Martinus Nijhof.

Appendix A.

Means and standard deviations of GHQ, LC and NSSQ

s	Mean	SD
General Health Questionnaire (GHQ)		
Total score:	8.4	5.7
Locus of Control Scale (LC) :	12.8	4.8
Fatalism subscale score:	4.5	2.2
Self-control subscale score:	2.9	1.6
Social-control subscale score:	5.3	2.0
Norbeck Social Support Questionnaire (NSSQ)		
Total score:	82.8	69.2
Affect subscale score:	17.7	15.6
Affirmation subscale score:	19.4	16.4
Aid subscale score:	19.6	16.1
Network number subscale score:	2.6	2.1
Duration subscale score:	12.6	10.3
Frequency subscale score:	11.6	9.8

Appendix B. Correlation Matrix among Variables (including the total score of the scale)

	LC	NSSQ	Sex	Time	Age
GHQ	.34 *	-.04	.06	.03	-.05
LC		-.03	.49 *	.25 *	-.14
NSSQ			.23	-.28 *	-.23
Sex				-.08	.15
TIM					.02

* - $p < .05$

Note: LC= Locus of control total score

NSSQ= Norbeck Social Support total score

GHQ= General Health Questionnaire total score

Time= Time lapse between the injury and the interview

Age = Age of the patients

Appendix C.

Hierarchically arranged Regression analysis summary table using the subscales of LC and NSSQ.

Dependent variable= GHQ score

	R change	F value	significance
1st Block Entry			
LSS LFA LSC	.21	4.1	.012
2nd Block Entry			
NAT NFE NAD NDU NAF NN	.40	2.9	.087
3rd Block Entry			
LFA X NAD LSS X NAT LSC X NAT LFA X NDU LSS X NAD LFA X NFE LSC X NN LSC X NAF LSS X NFE LSC X NAD LSS X NDU LFA X NAT LFA X NN LSS X NAF LSC X NDU LFA X NAF LSC X NFE LSS X NN	.13	1.3	.800

Appendix C (cont.)

Note:

LFA= Fatalism subscale score of LC scale

LSC= Self-control subscale score of LC scale

LSS= Social system control subscale of LC scale

NAT= Affect subscale score of NSSQ

NAF= Affirmation subscale score of NSSQ

NAD= Aid subscale score of NSSQ

NN= Network number subscale score of NSSQ

NDU= Duration subscale score of NSSQ

NFE= Frequency subscale score of NSSQ

NSSQ= Norbeck Social Support Questionnaire

SEX= gender of the patients

TIM= Time lapse between the injury and the interview

A X B= Interaction term for A and B

Appendix D.

ANOVA Summary Table

Dependent variable= GHQ

	Sum of squares	F	significance
Main effects			
NSSQ	20.9	.85	.36
LC	326.5	13.37	.001
2-way interaction			
LC X NSSQ	136.2	5.57	.023

df= (1,47)

Note: LC= Locus of Control total score

NSSQ= Norbeck social support total score

Appendix E.

Correlation matrix for internals and externals

Internals

	N	Sex	Status
GHQ	.157 (p= .212)	-.071 (p=.359)	.027 (p=.447)
N		.067 (p=.367)	-.375 (p=.025)
Sex			-.372 (p=.026)

Externals

	N	Sex	Status
GHQ	-.412 (p= .032)	-.216 (p=.173)	-.158 (p=.247)
N		.409 (p=.033)	-.166 (p=.236)
Sex			-.156 (p=.250)

Appendix F

THE NORBECK SOCIAL SUPPORT QUESTIONNAIRE

被訪者編號:_____

一九八五年六月

每個人唔會完全唔靠人幫助嘅，當你有需要時，有邊啲人會幫你？又有邊啲人係你會去「搵」嘅呢？呢啲可以係親人、朋友、老師、上司、下屬或任何人，你可唔可以話比我聽有需要時，支持或幫你係邊啲人呢？

支持組織

	名字或簡稱	關係
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		

有關剛才你所列出的每位人物，請回答以下的問題：

1.= 完全沒有
2.= 一點點
3.= 普通
4.= 頗大
5.= 好大

Question 1

呢個人你唔係會令你覺得自己是一個有人喜歡或愛的人？程度有幾大？

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

Question 2

呢個人係唔係會令你覺得自己是一個有人尊敬或羨慕的人？程度有幾大？

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

有關剛才你所列出的每位的人物，請回答以下的問題

1= 完全沒有
2= 一點點
3= 普通
4= 頗大
5= 好大

Question 3
你可以信任呢個人嘅程度有幾多？(肯定來說)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19 _____
20 _____

Question 4
呢個人贊成或支持你嘅行動或者想法的程度有幾多？(肯定來說)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

有關剛才你所列出的每位人物，請回答以下的問題：

1.= 完全沒有
2.= 一點點
3.= 普通
4.= 頗大
5.= 好大

Question 5
如果你需要借十元搭車時医生或者其他迫切的幫助，呢個人通常可以幫助你幾多？（暫時的幫忙）

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

Question 6
如果你要斷條命幾個星期，呢個人可以幫助你幾多？（長期的幫助）

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

Question 7

1. = 6 個月內
2. = 6 個月至 1 年內
3. = 1 年至 2 年內
4. = 2 年至 5 年內
5. = 超過 5 年

你認識呢個人幾耐？
(開係，持續的時間)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

Question 8

1. = 1 年 1 次或更少
2. = 半年 1 次或更少
3. = 1 個月 1 次或更少
4. = 1 個星期 1 次或更少
5. = 每日 1 次

你跟呢個人的接觸机会有幾多呢？
(电話，探訪或書信)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

Appendix F

普通健康問卷

唔該你細心讀吓：

我哋想知道哩幾個禮拜以來你有冇唔舒服，同埋你嘅健康情況。唔該你答晒下面嘅問題，如果你覺得頭個答案啱你，就喺下面劃一條線。記住我哋係想知道你最近同埋面家嘅情況，而唔係舊時嘅問題。

唔該你盡快答晒所有嘅問題，呢點係好重要嘅。

多謝你嘅合作。

你最近

1. 係唔係做乜嘢都能夠集中精神？	好過平時 差過平時	同平時一樣 差過平時好多
2. 係唔係擔心到好唔瞓得？	完全冇 多過平時	冇比平時多 多過平時好多
3. 係唔係喺嘅禁到瞓得唔好？	完全冇 多過平時	冇比平時多 多過平時好多
4. 係唔係忙碌同埋充份利用時間？	多過平時 冇平時咁多	同平時一樣 少過平時好多
5. 係唔係好似平時出咁多街？	多過平時 少過平時	同平時一樣 少過平時好多
6. 處理日常事務係唔係同人地一樣咁好？	好過好多人 冇人地咁好	大概同人地一樣 差過好多人
7. 係唔係覺得大致上做嘢都做得幾好？	好過平時 冇平時咁好	同平時差唔多 差過平時好多
8. 係唔係幾滿意自己做嘢嘅方式？	滿意過平時 冇平時咁滿意	同平時差唔多 非常唔滿意
9. 能唔能夠親切嘅對待你周圍嘅人？	好過平時 冇平時咁好	同平時差唔多 差過平時好多
10. 係唔係容易同人相處？	好過平時 冇平時咁多	同平時差唔多 差過平時好多
11. 係唔係好多時間同人傾偈？	多過平時 冇平時咁多	同平時差唔多 少過平時好多

係唔係覺得自己做嘢都幾有能力？	好過平時 冇平時咁好	同平時一樣 差過平時好多
13. 係唔係覺得對事情可以自己搵主意？	好過平時 冇平時咁好	同平時一樣 差過平時好多
14. 係唔係覺得成日有精神壓力？	完全冇 多過平時	同平時差唔多 多過平時好多
15. 係唔係覺得唔能夠解決自己嘅困難？	完全冇問題 難過平時	同平時差唔多 難過平時好多
16. 覺得做人成日要捱？	完全唔係 多過平時少少	比平時多 多過平時好多
17. 能夠開心啲過你平日正常嘅生活？	多過平時 少過平時	同平時一樣 少過平時好多
18. 覺得啲嘢都做得好吃力？	完全唔係 難過平時少少	同平時差唔多 難過平時好多
19. 無端端覺得好怕或者好驚？	完全冇 多過平時少少	同平時差唔多 多過平時好多
20. 能夠面對自己嘅困難？	好過平時 冇平時咁好	同平時一樣 非常唔能夠
1. 覺得冇法應付任何事情？	完全唔係 好過平時少少	同平時差唔多 好過平時好多
2. 覺得好唔開心又悶悶不樂？	完全唔係 多過平時少少	同平時差唔多 多過平時好多
3. 對自己失咗信心？	完全唔係 多過平時少少	同平時差唔多 多過平時好多
4. 覺得自己係個無用嘅人？	完全唔係 多過平時少少	同平時差唔多 多過平時好多

4.覺得人生完全冇晒希望？	完全唔係　　同平時差唔多 多過平時少少　　多過平時好多
5.覺得自己嘅將來好冇希望？	多過平時　　同平時差唔多 少過平時　　非常冇希望
6.大致上來講，樣樣嘢都幾開心？	多過平時　　同平時差唔多 少過平時　　少過平時好多
7.成日覺得心神不安，同埋緊張？	完全唔係　　同平時差唔多 多過平時少少　　多過平時好多
8.覺得唔值得繼續做人？	完全唔係　　同平時差唔多 多過平時少少　　多過平時好多
9.因爲神經太過緊張，覺得自己冇時做乜嘢都做唔倒？	完全唔係　　同平時差唔多 多過平時少少　　多過平時好多

Appendix H

Reid-Ware Three-Factor Internal-External Scale (中譯)

1.(甲) 社會的各種體育活動增加人們的團結。
(乙) 社會中的各種體育活動可以導致危害社會團結的衝突。

2.(甲) 戰爭帶出了人類最惡劣的一面。
(乙) 雖然戰爭恐怖，它也有一些價值。

3.(甲) 不論人如何設法努力阻止，戰爭總會發生。
(乙) 戰爭發生的最主要原因是：人們並無對政治作出足夠的興趣。

4.(甲) 雖然並無任何東西強迫，我會發覺我有時做些我不想做的事情。
(乙) 我總覺得我控制著我所做的事情。

5.(甲) 社會中有些機構對我有著一些的控制。
(乙) 在世上很少有東西會控制我，我通常可作出自己決定了的事。

6.(甲) 我歡喜住在小鎮或郊野。
(乙) 我歡喜住在大城市。

7.(甲) 對一個普通市民來說，成功皆因努力工作，卻與運氣無關。
(乙) 對一個普通人來說，得到一份好的工作主要是靠天時地利。

8.(甲) 愛國的國民需要參予發生的戰爭。
(乙) 作為一個愛國者，並不等於他必須為國家參予戰爭。

9.(甲) 在我來說，得我想要的東西和運氣沒有甚麼關係。
(乙) 在我來說，太早計劃沒有甚麼用處，因為很多事情取決於命運／運氣。

10.(甲) 有時我衝動地做了些我平時一定不會讓自己做的事。
(乙) 我發覺我可以控制我的衝動。

11.(甲) 在很多情形下，命運決定著人們所遇到的事情。
(乙) 人們理解不到他們自己如何決定著他們所遇到的事。

12.(甲) 大學生在和平的時候需要接受軍訓。
(乙) 戰爭帶來的問題比利益為大。

13.(甲) 大部份人都不明白他們的生活被意外的事件所控制著。
(乙) 對任何人來說，沒有運氣這東西。

14.(甲) 如果我在意的話，我可以對在職的議員有重要的影響。
(乙) 當我細心思想時，我明白我無法對議員作出任何重要的影響。

15.(甲) 面對命運，我有時感到它對發在我身上的事，只有很少的影響。
(乙) 我無可能相信機會及運氣對我有任何影響。

16.(甲) 當我想如何做的時候，我可以控制我的情緒。
(乙) 有時候我不能控制情緒。

17.(甲) 每個人都應給予一部份時間服務社會。
(乙) 人們會過得較好，如果他們能夠遠離其他與自己沒有關係的人。

18.(甲) 對於我們社會的事情來說，大部份人是一些他們自己未能控制及理解的外來勢力的犧牲品。
(乙) 人們可以透過社會及政治事件的參予來直接控制社會事務。

19.(甲) 人們不能時常控制他們私人的慾望，他們會因衝動而行動起來。
(乙) 如果人願意的話，他們可常常控制自己即時的慾望，並且不讓他們這些動機影響所有的行為。

20.(甲) 很多時候我覺得我可以拋硬幣來決定我要做的事情。
(乙) 大多數的情形下，我不會靠運氣來作決定。

21.(甲) 我們的政府應當推動廉租屋的大量生產來減低房屋的短缺。
(乙) 解決屋宇短缺的最佳方法是提供低息貸以刺激發展商興建較平宜的私人樓宇。

22.(甲) 我不明白為何議員們作出他們的決定。
(乙) 我很易理解為甚麼議員們做某些事情。

23.(甲) 雖然有時很困難，我總可以制我即時的行為。
(乙) 我無法完全控制我的行為取向。

24.(甲) 長遠來說，人們獲得他們爭取的尊重和成果。
(乙) 基於運氣差，一個普通人無論如何努力，都無其成就。

25.(甲) 人們可憑足夠的努力來清除政治上的貪污。
(乙) 人們對議員所做的政務很難有甚麼的控制。

26.(甲) 令您的朋友失望並非那樣的壞，因為您不能時時對所有人那麼好。
(乙) 當我不能完成一件我想諾了的工作時，我覺得很壞。

27.(甲) 透過積極參予適當的政治團體，人們可以減低物價的提高。
(乙) 人們對物價的提高無能為力。

28.(甲) 我可以作出和我們想做的相差很遠的事情。
(乙) 我很難能令到自己不控制自己的行為。

29.(甲) 我在這世界受到我無從理解及控制的社會力量所影響。
(乙) 我很容易避開企圖控制我的社會力量，而獨立地行動。

30.(甲) 喪失金錢比喪失一個朋友更慘。
(乙) 朋友是我們最寶貴的東西。

31.(甲) 人們的收穫多少建基於他們付出多少努力。
(乙) 很多時候發生在人身上的事情和他所做的沒有甚麼關係。

32.(甲) 大致上，我的行為並不為他人所控制。
(乙) 我的行為被其他重要人物所影響。

33.(甲) 人們可以及應該做他們認為在現在及將來做的事。
(乙) 人們太早計劃將來的事並無意思，因為其他人會打擾您的計劃。

34.(甲) 快樂就是擁有自己的房屋及汽車。
(乙) 快樂對很多人來說就是有自己的親密朋友。

35.(甲) 世上沒有甚麼運氣，發生在我身上的事是我自己行為的結果。
(乙) 有時我不明白我怎會有如此差的運氣。

36.(甲) 基督教義的傳授應該在公立學校得到更大的重視。
(乙) 基督教義不應放在學校課程之內，它可以在教會內教授。

37.(甲) 很多發生在人們一生中不愉快的事情，起碼有一部份因為運氣差。
(乙) 人們的不幸是他們自己犯錯誤的結果。

38.(甲) 對個人行為的自我約束是永遠可能的。
(乙) 我常發現當某些事情發生在我身上時，我不能抑止自己的反應。

39.(甲) 普通人都可對政府決策作出影響。
(乙) 世界被少數當權者所操縱，小市民無能為力。

40.(甲) 當我作出決定後，我總可以抗拒誘惑，控制我自己的行為。
(乙) 就算我嚐試抵抗，但仍不能抵受某些誘惑，如：飲酒或美食。

41.(甲) 我能否找到一份好工作或能否升職，取決於我命運的方向。
(乙) 當我得到一份好工，這總是我能力，動機的直接成果。

42.(甲) 成功人仕大多正直、善良。
(乙) 人們不應把成就與正直聯繫。

43.(甲) 大部份的人都不明白議員為何做了他所作的事。
(乙) 長遠來說，人們要對在地方或團體層面的出現的壞政府負責。

44.(甲) 我常明白到縱使我作最大的努力，發生的後果總像是命運使然。
(乙) 我的不幸或成功，是我的行為的直接後果。

45.(甲) 大部份人是正義，仁慈、善良的。
(乙) 人們不會幫助別人，除非受環境所迫。